

What is claimed is:

1. A blade support sub-assembly adapted to be used with a scraper blade for scraping and
2. cleaning a conveyor belt and with a mounting sub-assembly, comprising:
3. a pair of notched receiving members, each notched receiving member having
4. a notch formed from a front vertical stabilizer and a rear stabilizer, said notch for
5. receiving a scraper blade, and said pair of notched receiving members adapted for use
6. with a mounting sub-assembly;
7. a face plate extending between said pair of notched receiving members and
8. about parallel to the scraper blade such that at least a portion of the scraper blade rests
9. flush against said face plate when the scraper blade is situated in said pair of notched
10. receiving members; and
11. a means for vertically adjusting the height of the scraper blade in relation to
12. a fixed position of said pair of notched receiving members such that the scraper blade
13. is in contact with a surface of the conveyor belt to be scraped.
14. 2. The blade support sub-assembly according to claim 1, wherein said means for
15. vertically adjusting the scraper blade within said notches of said pair of notched
16. receiving members comprises a horizontal blade stabilizer approximately
17. perpendicular to and extending beneath said face plate, and one or more adjustable
18. lock bolts extending upward through said horizontal blade stabilizer and in
19. communication with a bottom surface of the scraper blade, wherein rotating one said
20. adjustable lock bolt in a first direction raises said adjustable lock bolt and the scraper
21. blade, and rotating one said adjustable lock bolt in a second direction lowers said
22. adjustable lock bolt and the scraper blade.
23. 3. The blade support sub-assembly according to claim 1, further comprising a means for
24. removably securing the scraper blade within said notches of said pair of notched
25. receiving members.

- 1 4. The blade support sub-assembly according to claim 3, wherein said means for
2 removably securing the scraper blade comprises one or more adjustable screws.
- 1 5. The blade support sub-assembly according to claim 1, further comprising a shield
2 attached to the scraper blade, wherein said shield extends from the scraper blade and
3 over the blade support sub-assembly.
- 1 6. The blade support sub-assembly according to claim 1, wherein said rear vertical
2 stabilizer is taller in height than said front vertical stabilizer.
- 1 7. The blade support sub-assembly according to claim 1, further comprising a scraper
2 blade having a blade insert fixed within a blade housing.
- 1 8. The blade support sub-assembly according to claim 1, further comprising a means for
2 spraying a liquid on the conveyor belt.
- 1 9. The blade support sub-assembly according to claim 8, wherein said means for spraying
2 a liquid comprises a pipeline, for transporting a liquid, having one or more nozzles,
3 a means for restricting a flow of the liquid through said pipeline, and a means for
4 securing said pipeline and said one or more nozzles in proximity to the blade support
5 sub-assembly.
- 1 10. The blade support sub-assembly according to claim 9, further comprising a shield,
2 having one or more holes, attached to the scraper blade, wherein said shield extends
3 from the scraper blade and over the blade support sub-assembly, wherein each of said
4 one or more nozzles of said pipeline aligns with and extends through one of said one
5 or more holes in said shield.
- 1 11. The blade support sub-assembly according to claim 9, wherein said shield is attached
2 to a front of the scraper blade such that the liquid is sprayed at a point on a conveyor
3 belt ahead of the scraper blade.

12. The blade support sub-assembly according to claim 9, wherein said shield is attached to a rear of the scraper blade such that the liquid is sprayed at a point on a conveyor belt behind the scraper blade.

13. The blade support sub-assembly according to claim 8, wherein the liquid is selected from the group consisting of water, a cleaning agent, a solvent, anti-freeze, and a dust inhibitor.

14. A torsion blade holder assembly, comprising:

a mounting sub-assembly comprising:

first hollow member having an inside diameter;

a second member having an outside diameter less than the inside diameter of said first hollow member and wherein at least a portion of said second hollow member is situated within said first hollow member such that a volume of space separates said first hollow member from said second hollow member;

torsion elements situated in the plurality of spaces between said first hollow member and said second member thereby resiliently restricting rotation of said second member within said first hollow member; and

a blade support sub-assembly according to claim 1.

- 15 The torsion blade holder assembly according to claim 14 further comprising a means for removably securing the scraper blade within said pair of notched receiving members.

- 17 The torsion blade holder assembly according to claim 14, further comprising a shield attached to the scraper blade, wherein said shield extends from the scraper blade and over the blade support member.

1 18. The torsion blade holder assembly according to claim 14, wherein said first hollow
2 member has rounded edges.

1 19. The torsion blade holder assembly according to claim 14, further comprising a means
2 for spraying a liquid.

1 20. The torsion blade holder assembly according to claim 19, wherein said means for
2 spraying comprises a pipeline for transporting a liquid having one or more nozzles, a
3 means for restricting a flow of the liquid through said pipeline, and a means for
4 securing said pipeline and said one or more nozzles in proximity to the blade support
5 sub-assembly.

21. A blade support sub-assembly adapted to be used with a scraper blade for scraping and
cleaning a conveyor belt and with a mounting sub-assembly, comprising:

7 a pair of notched receiving members, each notched receiving member having
8 a notch formed from a front vertical stabilizer and a rear stabilizer, said notch for
9 receiving a scraper blade, and said pair of notched receiving members adapted for use
10 with a mounting sub-assembly;

7 a face plate extending between said pair of notched receiving members and
8 about parallel to the scraper blade such that at least a portion of the scraper blade rests
9 flush against said face plate when the scraper blade is situated in said pair of notched
10 receiving members; and

11 a means for spraying a liquid on the conveyor belt.

1 22. The blade support sub-assembly according to claim 21, wherein said means for
2 spraying a liquid comprises a pipeline, for transporting a liquid, having one or more
3 nozzles, a means for restricting a flow of the liquid through said pipeline, and a means
4 for securing said pipeline and said one or more nozzles in proximity to the blade
5 support sub-assembly.

- 1 23. The blade support sub-assembly according to claim 21, further comprising a shield,
2 having one or more holes, attached to the scraper blade, wherein said shield extends
3 from the scraper blade and over the blade support sub-assembly, wherein each of said
4 one or more nozzles of said pipeline aligns with and extends through one of said one
5 or more holes in said shield.
- 1 24. The blade support sub-assembly according to claim 23, wherein said shield is attached
2 to a front of the scraper blade such that the liquid is sprayed at a point on a conveyor
3 belt ahead of the scraper blade.
- 1 25. The blade support sub-assembly according to claim 23, wherein said shield is attached
2 to a rear of the scraper blade such that the liquid is sprayed at a point on a conveyor
3 belt behind the scraper blade.
- 1 26. The blade support sub-assembly according to claim 21, wherein the liquid is selected
2 from the group consisting of water, a cleaning agent, a solvent, anti-freeze, and a dust
3 inhibitor.
- 1 27. A method for vertically adjusting a scraper blade in a blade support member,
2 comprising the steps of:
3 (a) positioning a scraper blade within a pair of notched receiving members,
4 each notched receiving member having a notch formed from a front vertical stabilizer
5 and a rear stabilizer, said notch for receiving the scraper blade, and said pair of
6 notched receiving members adapted for use with a mounting sub-assembly;
7 (b) vertically adjusting the height of the scraper blade in relation to a fixed
8 position of said pair of notched receiving members such that the scraper blade is in
9 contact with a surface of the conveyor belt to be scraped; and
10 (c) scraping the conveyor belt with the scraper blade.

- 1 28. The method according to claim 27, further comprising a face plate extending between
2 said pair of notched receiving members and about parallel to the scraper blade such
3 that at least a portion of the scraper blade rests flush against said face plate when the
4 scraper blade is situated in said pair of notched receiving members, and a horizontal
5 blade stabilizer approximately perpendicular to and extending beneath said face plate,
6 and one or more adjustable lock bolts extending upward through said horizontal blade
7 stabilizer and in communication with a bottom surface of the scraper blade, such that
8 said step (b) comprises rotating one or more of said adjustable lock bolts, wherein
9 rotating one said adjustable lock bolt in a first direction raises said adjustable lock bolt
0 and a portion of the scraper blade, and rotating one said adjustable lock bolt in a
0 second direction lowers said adjustable lock bolt and the portion of the scraper blade.
- 1 29. The method according to claim 27, further comprising the step of:
2 (d) spraying the conveyor belt with a liquid either just prior to or
3 immediately after said step (c).
- 4 30. A method for cleaning a conveyor belt, comprising the steps of:
5 (a) positioning a scraper blade with a shield within a pair of receiving
6 members such that the scraper blade is in contact with a surface of the conveyor belt
7 to be cleaned, each receiving member having a means for securing the scraper blade
8 and said pair of receiving members adapted for use with a mounting sub-assembly;
9 (b) spraying the surface of the conveyor belt to be cleaned with a liquid,
0 the liquid being transported through a pipeline and emitting from one or more nozzles
0 protruding through said shield of the scraper blade; and
0 (c) scraping the conveyor belt with the scraper blade.